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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,444	07/24/2001	Larry R. Dalton	UOFW117403	4443

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EXAMINER

METZMAIER, DANIEL S

ART UNIT PAPER NUMBER

1712

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/912,444

Applicant(s)

DALTON ET AL.

Examiner

Daniel S. Metzmaier

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 29-34 and 65-82 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-34 and 65-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claims 29-34 and 65-82 are pending.

#### *Election/Restrictions*

1. Applicant's election of Group I and species defined by  $\pi$ -conjugated polyene bridge equal to fused dithiophene group, phenyl amine (e.g., dialkylaminophenyl) donor, and trifluoromethyl sulfonyl-substituted furan acceptor. See Papers filed September 11, 2003 and March 2, 2004.

#### *Claim Objections*

2. Claims 70-72 are objected to because of the following informalities: referencing figure is the claims should only be done when it is not practical to otherwise describe the invention in the body of the claim. In the instant case, the chemical structures may be provided in the body of the claim. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 29-34, 65-69 and 74-82 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for compounds disclosed with a disclosed  $\pi$ -electron donor groups,  $\pi$ -conjugate polyene bridge and  $\pi$ -electron acceptor groups, does not reasonably provide enablement for all compounds which may meet applicants' claimed functional language. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to

make and use the invention commensurate in scope with these claims. Applicants' claims read on compound, which applicants have neither disclosed nor contemplated that have the electro-optic properties set forth in the claims. No single claim specifically defines each of the groups broadly defined in the independent claim. While the specification sets forth materials, which are  $\pi$ -electron donor groups,  $\pi$ -conjugate polyene bridge and  $\pi$ -electron acceptor groups; applicants' have not disclosed all materials reading on said genus. The claims do not define a structure having sufficient specificity that one skilled in the art could make and use the compounds within the breadth of the claims without undue experimentation. More specifically, the claims do not define the arrangement of the various substituents, what linking groups said compounds require and where said substituents are on the compound.

Applicants' claims are an invitation for experimentation for the skilled artisan to determine what materials meet the scope of the claims. Applicants disclose (page 9, lines 24-28) the compounds representative of the compounds having a high electro-optic coefficient include those of example 4. Applicants further disclose compounds having an electro-optic coefficient less than the claimed value.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 29-34, 65-69 and 74-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the  $\pi$ -electron donor groups,  $\pi$ -conjugate polyene bridge and  $\pi$ -electron acceptor groups are

conjugated. It is unclear what are the metes and bounds of the claimed invention since the compound structures are not adequately delineated.

In claims 74-82, it is unclear on what said materials are a substituent and where said substituent is bonded to the unspecified non-linear optical materials.

#### ***Allowable Subject Matter***

7. Claim 73 is deemed allowable.
8. Claims limited to the elected species is deemed allowable.
9. Claims 70-72 are objected to, but would be allowable if rewritten in proper form including the structures of the figures delineated therein.

#### ***Response to Arguments***

10. Applicant's arguments filed September 7, 2004 have been fully considered but they are not persuasive.
11. Applicants assert that the scope of independent claims 29 and 31 is enabled because applicants have provided examples for each of the groups and or substituents. This has not been deemed persuasive since applicants have not set forth any structure with specificity, how said compounds would be linked and the linking groups therefore.
12. Claims 29 and 31 are indefinite since it is unclear how the compounds are linked. Applicants do not define where on the compounds said substituents are conjugated.
13. Claims 74-82 are incomplete since they do not define a compound but a substituent. It is unclear whether said material is a free radical or what is the rest of the compound.

***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Daniel S. Metzmaier  
Primary Examiner  
Art Unit 1712

DSM